

The following question and answer format is used to explain the conceptual approach behind the draft proposal to regulate diesel exhaust particulate emissions. While not intended to answer all of the questions related to this issue, it provides a framework for discussion; explaining the rationale behind the proposal and pointing out areas where different approaches can be considered in designing a regulation.

What sources would be subject to a diesel particulate emission standard?

Stationary and portable, compressed-ignition (CI) engines primarily fueled by diesel fuel oil would be subject to the new proposed standards.

CI engine would be defined in either NR 400 or 445. Definition would be written to distinguish from spark-ignited (gasoline) engines, turbines and external combustion boilers.

How would diesel fuel oil be defined?

A broad range of definitions (e.g., CARB, Dept. of Commerce, ASTM, API, US EPA) for diesel fuels is available in the literature and in other state and federal regulations. The need to precisely define what range of fuel specifications makes up diesel fuel depends on how the regulation is developed.

If the applicability of the standard is premised solely on the use of diesel fuel, then the fuel specifications need to be precisely defined both in the regulation and any recordkeeping requirements.

On the other hand, if applicability is premised on the combustion source, as in this case (CI engine using fuel oil), then precise fuel specifications become less important.

Will emergency generators still be exempt?

Yes, emergency electrical generators as defined by s.NR 400.02(56) and meeting s.NR 406.04(1)(w) or s.NR 407.03(1)(u) would be exempt from permit and control requirements.

NR 400.02(56) "Emergency electric generator" means an electric generator whose purpose is to provide electricity to a facility if normal electrical service is interrupted and which is operated no more than 200 hours per year.

NR 406.04(1)(w) Emergency electric generators powered by internal combustion engines which are fueled by gaseous fuels, gasoline or distillate fuel oil with an electrical output of less than 3,000 kilowatts.

NR 407.03(1)(u) Emergency electric generators powered by internal combustion engines which are fueled by gaseous fuels, gasoline or distillate fuel oil with an electrical output of less than 3,000 kilowatts.

What would the threshold values in Table A of NR 445 be?

Threshold values for diesel exhaust, based on the reference concentration standard, have been proposed to be 888, 3650 and 30,629 lbs./yr. for <25, 25 to 75 and >75 foot stacks respectively. Threshold values based on carcinogenicity have been proposed to be 6, 24 and 204 lbs./yr. respectively. It is anticipated that the emission thresholds based on carcinogenicity would be removed from the table if a provision to regulate diesel particulate emissions from CI engines were developed separately.

What would the standard be for new sources?

A new source, defined as a source modified or constructed after the effective date of a revision to NR 445, would be subject to best available control technology (BACT) requirements and the reference concentration:

Emergency electric generators meeting s.NR 406.04(1)(w) would be exempt from construction permits and hazardous air pollutant control requirements.

All other CI engines would meet BACT and the reference concentration.

What would the standard be for existing sources?

An existing source, defined as last modified prior to the effective date of a revision to NR 445, would be subject to performance-based standard requirements and the reference concentration:

Emergency electric generators meeting s.NR 407.03(1)(u) would be exempt from operational permits and control requirements.

*All other CI engines **over** a combined fuel use/stack height "level" will be required to use ultra-low sulfur fuel oil and meet the reference concentration. An example of how this table might look:*

Stack Height (feet)	Outside of Milwaukee Urban (gallons/year)	Milwaukee Urban (gallons/year)
Area Source (Less than 12 feet)		
12 to less than 20	<i>Amounts would be based on source input to help established uncontrolled, fuel-based emission rates related to capacity</i>	
20 to less than 30		
30 feet and above		

All CI engines not wanting fuel use restrictions would will be required to use ultra-low sulfur fuel oil, a particulate emission control device and meet the reference concentration.

When would sources need to meet the new standards?

New and modified sources would need to meet new standards and requirements upon startup, after the effective date of the rule.

Existing sources would need to meet new standards and requirements no later than 3 years after the effective date of the revision to NR 445.

What if ultra-low sulfur fuel is not available?

We recognize that ultra-low sulfur fuel will not be widely available for a number of years. To account for that possibility the ability to get a time extension will be included in the rule.

What would the reporting level be in NR 438?

The current (March 2001) proposal lists a 3.0 lb./yr. reporting threshold for NR 438. Under a proposal to regulate using a combination of control requirements and performance-based standards, the NR 438 threshold based on carcinogenicity would be replaced with a threshold based on 50% of the diesel reference concentration. The new threshold would be 444 lbs./yr.

Why is a performance-based standard being proposed instead of requiring existing sources to meet BACT?

A performance-based standard can be a preferred option in situations where emission sources and emission reduction strategies are very similar. In these cases, a source-by-source BACT review will typically result in very similar decisions regarding feasibility, cost of controls, testing, monitoring, recordkeeping and reporting. The benefits to using a performance-based approach are consistent requirements across a source category, reduced review time for sources and reviewing agency, and certainty in regard to regulations for affected sources.

This approach is currently being used to implement NR 445 for compliance with certain BACT/LAER standards. Examples include:

***Gasoline dispensing facilities** are considered to be exempt from LAER (benzene) requirements provided they stay below a threshold level (gals./yr.) or limit operations and meet vapor recovery requirements designed to reduce VOC emissions. Unrestricted gasoline dispensing from a facility is subject to LAER requirements. For purposes of compliance with NR 445 a facility is considered to be in compliance with LAER requirements if they meet the Stage I and II vapor recovery requirements found in ss.NR 420.04(3)(b) to (i) and 420.045. No independent review under NR 445 is conducted and no permits are required for these facilities.*

***Asphalt plants** and sources with **ethylene oxide sterilizers, or petroleum storage tanks** are required to meet the same control requirements (across their industry) and generally are not reviewed for site-specific conditions. Control requirements for each of these*

activities were developed by department staff and are implemented through administrative orders and operation permits.

*Sources **combusting municipal solid or infectious waste** must meet LAER requirements regardless of the emission levels of carcinogens. Sources meeting the department's guidelines for combusting these types of waste are considered to be compliance with LAER requirements in NR 445. Source conditions and recordkeeping requirements are set by permit.*

*Emissions from **wood combustion sources with good combustion technology** are exempt from the BACT (formaldehyde) and LAER (benzene) requirements in NR 445. Sources operating below a threshold level (lbs. fuel burned/yr.) or meeting emission guidelines developed by the department are considered to be in compliance with NR 445. Monitoring and recordkeeping requirements are set by permit. An initial stack test to set baseline conditions for monitoring can be required.*

Why is BACT being proposed instead of a performance-based standard for new sources?

Using BACT makes more sense as an approach to regulate new sources for a number of reasons. Initially, the availability of ultra-low sulfur fuel and particulate control devices will be much more limited than what is expected 4-5 years from now. By definition, a BACT review considers the cost and availability of controls and energy as well as the environmental impacts on a source-by source basis. Using this approach, the department can be more responsive to the evolving situation expected during the transition period for refiners producing the ultra-low sulfur fuel oil nationally.

However, this does not imply that CI engines permitted during the 3 year compliance period for existing sources will have less stringent standards than older CI engines sited prior to the rule revision. The performance-based standards set for existing CI engines set a "baseline" that will be considered in permitting the newer CI engines.

It should be anticipated that BACT determinations made in the first 3 years after the revision would set staged or tiered requirements. Initial requirements (those in the first 3 years) would reflect the availability and cost of fuel and control technology. Requirements after the initial 3 year period would be at least as stringent as the performance-based standards imposed on CI engines sited prior to revisions to NR 445. Knowing future requirements such as needing to use a particulate control device prior to construction should help the source make more cost effective decisions related to future retrofitting.

New CI engines sited 3 years and later after the NR 445 revision will need to evaluate new control technologies and their costs as they develop on a source-specific basis. Under a BACT approach the department will have the ability to consider whether new engines designed to meet federal standards meet BACT for NR 445. Factors such as the level of particulate emissions and compliance options allowed under federal requirements and cost of alternative/additional controls will likely be part of these future considerations.

Can I model out of having to do BACT or meet a performance-based standard?

No. The option to do modeling to demonstrate emissions do not exceed an "acceptable risk (10^{-5})" is premised on using an established unit risk factor for the pollutant in question. Due to the controversy over using the CARB unit risk factor in setting a regulation for diesel exhaust particulate, no acceptable risk level is being proposed.

A source would be allowed to exclude the emissions from CI engines meeting either BACT or the performance-based standard in order to use the proposed facility-wide risk modeling demonstration of risk for other carcinogens.

A source may limit its operation (fuel use restriction) in order to avoid having to use controls to reduce particulate emissions for CI engines.

Will I have to do emission testing for particulates?

One of the advantages of setting a performance-based standard is that it allows compliance demonstration requirements to be designed around operational parameters instead of exhaust gas measurements. In other words, documenting fuel specifications, monitoring fuel use and oxidation temperatures should be sufficient to demonstrate compliance on a continuous basis.

What kind of recordkeeping and reporting requirements will I have?

Essentially everyone operating a CI engine needs to keep records to demonstrate compliance with NR 445. For most, if not all, owners and operators of small emergency or limited use generators, no additional recordkeeping beyond what likely is already done is expected. Exempt sources and those falling below applicability thresholds will have to keep records on site indicating the hours they were operated and fuel use during the year. An operational log, hour meter on an engine or fuel purchase records will be sufficient to show they meet the requirements of applicable air regulations. These records shall be kept at the facility for a period of at least 3 years.

Sources subject to BACT or performance-based standards will need to keep records in accordance with permit requirements, or as required by rule if no permit is required.

Do portable sources consider annual emissions/fuel use by source or by site?

Portable sources would consider fuel use on a site-by-site basis in order to determine the applicability of the level of standard needing to be met. Guidance indicating what constitutes moving to a "new" site would be provided.